National Institute of Environmental Health Sciences

The occurrence of acute myocardial infarction in relation to weather conditions

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Abstract:

The spatial and temporal changes of weather factors depend on geographical location, seasons and the time of the day. Our study examines the relationships of meteorological factors and the incidence of acute myocardial infarction (AMI). A retrospective analysis of patients diagnosed with AMI between 2000 and 2004 in Hungary (n Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 81,956 patients) was carried out. Data were collected by the National Health Insurance Fund Administration (OEP) and the National Meteorology Service (OMSZ). A peak period of the occurrence of AMI was found during spring, while minimum number of events were recorded during summer. Significant difference was observed between the number of events each season (F Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 34.741; $p < 0.001$; N Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 81,956). A medium level negative correlation was found between the monthly average temperature and the occurrence of AMI (r Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) -0.404) during the period examined. A positive correlation was shown between front movements and the number of events per season (r Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.053). Average barometric pressure changes, the number of front movements and the number of AMI events also showed a nearly similar seasonal deviation. Our findings show that certain meteorological factors may be related to the onset of AMI, however other factors also play an important role.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Hungary

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Morbidity/Mortality

Cardiovascular Effect: Heart Attack

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified